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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,077	04/09/2001	Michel Pignol	025219-325	2309

7590

12/04/2003

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EXAMINER

IQBAL, NADEEM

ART UNIT	PAPER NUMBER
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2184

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,077

Applicant(s)

PIGNOL, MICHEL

Examiner

Nadeem Iqbal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5. 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 26 is objected to because of the following informalities: In line 4 of this claim, the wording "even though **is has** usually swapped" seems improper. Appropriate correction is required.
2. Claims 22-27, 28, 29, 35-39 are dependent from canceled claims 1, 7 & 14 respectively, Correction and response from the Applicant is required. Examiner has still addressed them assuming the dependence of claims 22-27 on claim 21, 28, 29 on claim 27, and those of 35-39 on claim 34.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 21 & 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by

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raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 21 recites the broad recitation "two virtual sequences located on a single physical sequence are multiplexed in time", and the claim also recites "if an error is detected, the real time cycle in progress is inhibited and a healthy context is reloaded to make a restart" which is the narrower statement of the range/limitation.

4. Claims 21 & 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

6. Regarding claims 21 & 26, the phrase "for example" (in other words) renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

7. Claim 21 recites the limitation "two virtual sequences located on a single physical sequence are multiplexed in time" in lines 3-5. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 30 recites the limitation "variables/data to be voted" in lines 1 & 2. There is insufficient antecedent basis for this limitation in the claim.

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9. Claim 32 recites the limitation "the control electronics" in line 1. There is insufficient antecedent basis for this limitation in the claim.

10.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 21-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimada et al., (U.S. Patent number 5948112).

13. As per claim 21, Shimada et al., teaches (col. 2, lines 58-60) a method of recovering from software faults utilizing checkpointing and roll back recovery type fault tolerant computing system. With respect to limitations to virtual sequences located on a single physical sequence multiplexed in time, if error is detected, the real time cycle in progress is inhibited and a healthy context is reloaded. He teaches (col. 2, lines 59-63) detecting faults between particular checkpoints, identifying whether or not the fault is a software fault, executing the recovery action when the internal state of the system rolled back to a checkpoint, which was acquired just before occurrence of the detected fault.

14. As per claim 22, Shimada et al., teaches (col. 2, lines 53-55) a computing system that dynamically changes a software module which has a software fault to a normal one without stopping the data processing, thus teaches at least three error confinements areas comprising time, software, and hardware.

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15. As per claim 23, He teaches (col. 3, lines 45-48) a method for recovery from faults in a checkpointing and roll back recovery type fault tolerant computing system, thus would clearly utilize an error detection and correction code.

16. As per claim 24, He already teaches per claim 21 above a method of recovering from software faults utilizing checkpointing and roll back recovery type fault tolerant computing system, thus provides detection/correction in real time cycle.

17. As per claim 25, He teaches as stated above (col. 3, lines 45-48) a method for recovery from faults in a checkpointing and roll back recovery type fault tolerant computing system, thus teaches backup context function.

18. As per claim 26, with respect to limitations "restore context" function activated during an error correction. He teaches as stated above recovering from software faults utilizing checkpointing and roll back recovery type fault tolerant computing, thus teaching the stated limitations.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 27-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al., (U.S. Patent number 5948112) in view of Carter et al., (U.S. Patent number 5845331).

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21. As per claim 27, Shimada et al., does not explicitly disclose that segmentation of memory is associated with a hardware device to check access rights. Carter et al., teaches (col. 2, lines 1-5) guarded pointers address memory locations to which access is restricted, processor hardware distinguishes guarded pointers from other words. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the segmentation of memory with guarded pointers into the system of Shimada et al., since such an inclusion clearly provides a desirable advantage of efficient protection and sharing of data as taught by Carter et al., (col. 4, lines 23-25).

22. As per claim 28, Carter et al., teaches (col. 2, lines 1-5) guarded pointers address memory locations to which access is restricted, processor hardware distinguishes guarded pointers from other words, thus would enable several access configurations allowing access to one of several non-contiguous segments.

23. As per claim 29, Carter et al., also teaches (col. 2, lines 58-60) that other preferred pointer types are read-only pointers, read/write pointers, execute pointer and key pointers, He thus teaches hardware device to check access rights and key pointers.

24. As per claim 31, Shimada et al., already teaches as per claim 21 above detecting faults between particular checkpoints, identifying whether or not the fault is a software fault, executing the recovery action when the internal state of the system rolled back to a checkpoint which was acquired just before occurrence of the detected fault, thus teaching software checks, software and hardware monitoring.

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25. As per claim 33, Shimada et al., teaches (col. 2, lines 58-60) a method of recovering from software faults utilizing checkpointing and roll back recovery type fault tolerant computing system, thus clearly teaching his systems applicability to space applications.

26. As per claim 34, Carter et al., teaches (col. 2, lines 1-5) guarded pointers address memory locations to which access is restricted, processor hardware distinguishes guarded pointers from other words. Carter et al., also teaches (col. 2, lines 58-60) that other preferred pointer types are read-only pointers, read/write pointers, execute pointer and key pointers, He thus teaches hardware device to check access rights and key pointers. He does not explicitly disclose that access for some segments will only be authorized if there is a very strong probability that the microprocessor will be in a good operating state. It would have been obvious to a person of ordinary skill in the art to realize that access for some segments will only be authorized if there is a very strong probability that the microprocessor will be in a good operating state, since He teaches that processor hardware distinguishes guarded pointers from other words, therefore clearly processor operating state to be in good standing is critical to enable safe storage of critical data as claimed.

27. As per claims 35 & 38, Carter et al., also teaches (col. 2, lines 58-60) that other preferred pointer types are read-only pointers, read/write pointers, execute pointer and key pointers, thus would clearly allow accessibility in read only and read/write only for segments.

28. As per claim 36, Carter et al., teaches (col. 2, lines 7-9) that processor hardware distinguishes guarded pointers from other words and is operable under program control to modify guarded pointers, thus would clearly allow a segment size to be arbitrary.

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29. As per claim 37, Carter et al., teaches as stated above that processor hardware distinguishes guarded pointers from other words and is operable under program control to modify guarded pointers, and that that other preferred pointer types are read-only pointers, read/write pointers, execute pointer and key pointers, thus would clearly allow specific definition and logical combination functions for the keys.

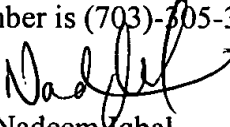
As per claim 39, Carter et al., teaches (col. 2, lines 57-59) pointers that allow access to code beginning at the pointer address but prevent by pass of portions of the code and prevent changing or copying of the code, thus would enable storage of critical data by pair.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadeem Iqbal whose telephone number is (703)-308-5228. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703)-305-9713. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-746-7239 for regular communications and (703)-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-3900.


Nadeem Iqbal
Primary Examiner
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November 29, 2003